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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MORRISON & FOERSTER LLP			DUPUIS, DEREK L	
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DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/694,928	Applicant(s) MAXWELL ET AL.	
	Examiner Derek L. Dupuis	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 1-24, 29-32 and 49-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-28 and 33-48 is/are rejected.
- 7) ☒ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/2/04 & 4/19/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1-24, 29-32, and 49-65 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 6/3/2005.
2. Applicant's election with traverse of Invention I, Species A, Sub-species D in the reply filed on 6/3/2005 is acknowledged. The traversal is on the ground(s) that the election of species between sub-species C and sub-species D is improper because the sub-species could be searched together. This is found persuasive therefore the examiner withdraws the election of species requirement between sub-species C and sub-species D. These sub-species have been examined together. Claims 1-24 and 49-65 have been withdrawn as being drawn to nonelected inventions. Claims 29-32 have been withdrawn as being drawn to a nonelected species (species B). The claims being examined as being drawn to Invention I, Species A are 25-28 and 33-48.
3. However, the restriction with regards to Inventions I and II and with regards to Species A through O (except for species C and D) is deemed proper and therefore is made **FINAL**.

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on 1/2/2004 and 4/19/2005 have been considered by the examiner.

Drawings

5. Figures 1a, 1b, 2a, 2b, and 2c should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

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compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the upper cladding with an air clad portion (claim 25) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities: the US Patent application (10/308562) in paragraph 63 should now be referenced by its US Patent Number (6,818,721). Appropriate correction is required.

Claim Objections

9. Claim 25 is objected to because of the following informalities: the claim includes the limitation that the upper cladding includes an air clad portion. Upon inspection of the specification and the drawings, the examiner has concluded that it is the light transmissive element that includes the air clad portion rather than the cladding. The disclosure does not include teachings of an upper cladding with an air clad portion so as to enable one of ordinary skill in the art to make the invention. Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 25 and 45 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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12. Claim 25 uses an improper alternative recitation – i.e. the use of the word “optional” in the claim. Applicant must positively and definitely recite what the claim comprises.

13. Claim 45 uses an improper alternative recitation – i.e. the use of the phrase “where present” in the claim. Applicant must positively and definitely recite what the claim comprises.

14. For the purpose of examination, the examiner has interpreted the claims to include the limitation of having a lower cladding layer so as to examine the broadest scope of the claim.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 25-28, 33, 34, and 41-43 rejected under 35 U.S.C. 102(b) as being anticipated by *Sun et al (US 5,432,877)*.

17. Sun et al teach an integrated optical waveguide shown in figure 4D. The waveguide comprises a substrate (30), a lower cladding layer (32), a light transmissive element (34) and a patterned upper cladding (36). The patterned upper cladding is arranged on the light transmissive element (34) in such a way so that at least a portion (42) of the light transmissive element (34) has an air clad region at one end of the waveguide. The light transmissive element comprises a waveguide and a lens as a unitary body (see abstract). As shown in figure 4D the lens has an air clad curved surface (42) on both top and bottom portions of the light transmissive element. As shown in figure 1B, the back portion of the light transmissive element extends to the same location as the back portion of the upper cladding. In this respect, the portion of the

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upper cladding "matches" the portion of the light transmissive element. Sun et al also teaches that the substrate can comprise silicon (see column 3, lines 16-49).

18. Claims 41 and 42 are **product-by-process claims**:

Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Thorpe*, 227 USPQ 964, 966; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 2113.

19. Claims 41 and 42 do not distinguish over the Sun et al reference regardless of the process used to remove the dielectric material, because only the final product is relevant, and not the process of making such as patterned by selectively curing with a patterned heat source or with a patterned source of ultraviolet light.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 35-40, and 44-48 rejected under 35 U.S.C. 103(a) as being unpatentable over *Sun et al (US 5,432,877)* as applied to claims 25-28, 33, 34, and 41-43 above, and further in view of *Ghoshal et al (US 6,832,036 B2)*.

22. Sun et al do not teach that the upper cladding or the lower cladding comprise a polymeric material such as siloxane polymer or that the material is thermally curable or curable by actinic radiation. Ghoshal et al teach an integrated optical waveguide with a light transmitting core and

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with a lower and an upper cladding. Ghoshal et al teaches that the claddings and the core can comprise a siloxane polymer and that the polymer can be cured by actinic radiation with UV light or by thermal curing (see column 2, line 25 to column 4, line 52). Ghoshal et al also teach that the substrate can be made from materials such as glass, silica, ceramics, quartz, crystalline materials, or plastics. Polymers such as PET are well known and routinely used plastics used in the semiconductor art.

23. It would have been obvious to one of ordinary skill in the art at the time of invention to make the claddings and core taught by Sun et al out of a siloxane polymer as taught by Ghoshal et al. Motivation to do this would be the desirability of the high refractive index contrast between the siloxane polymer core and the siloxane polymer claddings and the compatibility with silicon processing requirements (see abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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